Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

Starkey Laboratories, Inc. and
Micro Ear Technology, Inc.

RM-11523

Petition for Rulemaking to Amend the
Minimum Bandwidth Requirements in
Section 15.247(a)(2) for the 902-928 MHz
Band

REPLY COMMENTS OF STARKEY LABORATORIES, INC. AND MICRO EAR TECHNOLOGY, INC.

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SUMMARY

Starkey Laboratories filed a Petition for Rulemaking to amend the minimum 6dB bandwidth requirement in Section 15.247(a)(2) of the Commission's rules so that it, and others, may operate low power RF communications devices ("low power devices"). Starkey has made a significant investment in wireless low power devices such as assistive listening devices ("ALDs), devices for transmitting public service announcements and alarms to hearing instruments and programming devices for the configuration of hearing instruments. Starkey seeks to operate said devices within Section 15.247(a)(2) with a narrower 6 dB bandwidth of 100 kHz instead of the 500 kHz required by the rule, while maintaining the 8 dBm/3 kHz power spectral density specified in Section 15.247(e). Amending the rule would greatly benefit Americans with hearings disabilities, make for better and more efficient use of the spectrum and would not cause harmful interference.

Starkey also filed for a waiver of the minimum bandwidth requirement of the rule so that it could more expeditiously roll out products that would greatly enhance the overall quality of life of Americans with hearing impairments; but it also is pursuing the Petition for Rulemaking so that others in the hearing aid manufacturing industry, as well as other users of the spectrum may operate said low power devices and use the spectrum more efficiently. Various commenters support Starkey's Petition including the Hearing Loss Association of America, the Hearing Industry Association, other hearing aid manufacturers and suppliers and the IEEE Radio Regulatory Technical Advisory Group, IEEE 802.18.

USA Mobility Inc., Itron, Inc., and the Medical Manufacturing Association of American filed comments opposing the Petition; Progeny LMS, LLC would support the Petition, but only with restrictions. USA Mobility also incorporated its untimely comments opposing Starkey's Waiver Request in its comments opposing the Petition.

The comments opposing Starkey's Waiver Request and its Petition for Rulemaking are unsupported. Starkey's filings are entirely appropriate and consistent with the public interest; the waiver would be particular to Starkey but would more expeditiously enhance the quality of life of Americans with hearing impairments; a rule change would enable other hearing aid manufacturers to further enhance benefits for the hearing disabled, enable other users of the spectrum and make for better and more efficient use of the spectrum. The waiver request, if granted, would serve the public interest without undermining the policy of the rule.

Further, granting the Waiver Request or the Petition for Rulemaking would not produce harmful interference. Starkey conducted tests with various 900 MHz hand sets and head sets, and did not encounter any problems with interference. While Starkey is seeking a reduction in the minimum bandwidth from 500 to 100 kHz, it is not seeking to change the power spectral density requirement of 8 dBm/3 kHz, and thus is not asking to increase the overall output power specification. The change that Starkey requests would prevent the inefficient use of the 902 to 928 MHz band by reducing the total power and the total occupied bandwidth for those applications that do not require 500 kHz of bandwidth.

Claims that the waiver or rule change would exacerbate the problems caused by the 100 percent duty cycle of many digitally modulated devices fail. Starkey supports the Commission's consideration of "rules of etiquette." If the Commission were to look favorably on the Petition for Rulemaking, Starkey would support the Commission also adopting appropriate spectrum etiquette techniques including LBT and duty cycle limitations. USA Mobility's claims that the rule change would threaten out-of-band operations are unfounded. There are already rules in place that protect out-of-band operations. For the same reasons, there is no need to adopt a "guard band" to shield users in adjacent licensed bands if the Commission were to grant the waiver or the rule change.

Itron's claim that a rule change would undercut the rule's purposes also fails. The rule change would actually make for better and more efficient use of the spectrum. The rule change would also be in accordance with the Commission's efforts to rationalize the use and encourage the commercial use of the 902 to 928 MHz band in such a way to as to maximize usage while minimizing interference. Notwithstanding USA Mobility and Itron's claims, using alternative spectrum to operate the ALDs is not viable or practicable.

There are sufficient reasons to support Starkey's Petition for Rulemaking. Amending the rule would bring enormous benefits to hearing-impaired Americans. Amending the rule would also result in the better and more efficient use of the bandwidth and not result in harmful interference. The Commission could also adopt spectrum etiquette techniques if it looks favorably on the rule change. For these reasons, the Commission should grant the Petition for Rulemaking.

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REPLY COMMENTS OF STARKEY LABORATORIES, INC. AND MICRO EAR TECHNOLOGY, INC.

Starkey Laboratories, Inc., and its wholly-owned subsidiary, Micro Ear Technology, Inc. (hereinafter referred to collectively as "Starkey Laboratories") replies to comments filed in response to Starkey Laboratories' Petition for Rulemaking to amend the minimum 6 dB bandwidth requirements in Section 15.247(a)(2) of the Commission's rules ("Starkey Petition"). Starkey Laboratories has asked to amend Section 15.247(a)(2)[1] so that it, and others, may operate low power RF communications devices ("low power devices") with a narrower 6 dB bandwidth of 100 kHz instead of the 500 kHz required by the rule. Amending the minimum bandwidth requirement is in the public interest as it would enable Starkey and other hearing aid manufacturers to greatly enhance the hearing disabled patients' quality of life, make for better and more efficient use of bandwidth, and not cause any harmful interference with other users of the relevant spectrum.

[1] Starkey Laboratories also filed a separate Amended Request for Waiver of 15.247(a)(2)'s minimum bandwidth requirements ("Waiver Request"). Starkey asked for a temporary waiver in order to more expeditiously roll out the assistive listening devices ("ALDs") and other devices to the hearing disabled. The Office of Engineering and Technology has separately sought public comment on the Request for Waiver in ET Docket No. 09-38.

I. STARKEY'S PETITION FOR RULEMAKING

Starkey Laboratories is an industry leader in hearing instrument manufacturing and hearing solutions for every environment. It is interested in facilitating wireless assistive listening, hearing enhancement, and configuration of hearing instruments for the hearing impaired; and has made a significant investment in low power devices in the 902 to 928 MHz ISM band. Among the devices that Starkey intends to use in the band are: assistive listening devices ("ALDs") for sending digital audio information to a hearing aid wearer for the purpose of improving the signal to noise ratio of audio information presented in a classroom and other public venues; wireless devices for transmitting public service announcements and alarms to hearing instruments; hearing assistance devices to permit two-way digital audio communication and related control; and programming devices for configuration and maintenance of hearing instruments. Starkey Waiver Request at 2-3; *see also* Starkey Petition at 3-5. All of these devices would greatly enhance the overall quality of life of Americans with hearing impairments.

Starkey Laboratories determined that operating these low power devices within the present requirements of Section 15.249 of the Commission's rules has several technical limitations. It also determined that operating the low power devices in the 217 MHz band allocated for hearing assistance devices would require modifications and/or changes of various Commission rules. Starkey Petition at 2 & n.1.

Because of these limitations, Starkey Laboratories asked for a waiver to operate the low power devices within Section 15.247(a)(2) with a narrower 6 dB bandwidth minimum of 100 kHz instead of the 500 kHz minimum required by the rule, while maintaining the 8 dBm/3 kHz power spectral density specified in Section 15.247(e).[2] Starkey also filed a Petition for

[2] *See* Starkey's Waiver Request and ET Docket No. 09-38.

Rulemaking to amend the rule. Amending the rule would actually make for better and more efficient use of the available bandwidth and would not produce harmful interference.

Moreover, amending the rule is in the public interest, as it would enhance hearing disabled patients' overall quality of life. The over thirty-one million Americans with hearing problems face challenges on a daily basis. Many custom hearing aid wearers may have difficulties understanding speech in public places, including airports, train stations and theaters; poor signal to noise ratio may make it difficult to understand public announcements; the range on in-home ALDs are often limited to line of sight or same room usage; and most current communication interfaces require equipment that unnecessarily expose the patient's disability. The requested rule change would enable Starkey and other hearing aid manufacturers to roll out low power devices that would permit custom hearing aid wearers to be better and more seamlessly connected in various settings. Starkey Waiver Request at 7-8.

Starkey's Petition for Rulemaking is supported by the following commenters: the Hearing Loss Association of America ("HLAA"), an organization dedicated to opening the world of communications to people with hearing loss; the Hearing Industries Association on behalf of its members as well as of the European Hearing Industry Manufacturers Association; Williams Sound Corporation ("Williams"), an industry leader in hearing assistance technology for over 33 years; Zarlink Semiconductor ("Zarlink"), a leading provider of integrated circuits for medical applications including hearing aids for over 30 years; ON Semiconductor ("ON"), a leading supplier of silicon solutions for medical devices as well as the hearing aid industry. The petition for Rulemaking is fully endorsed by the Institute of Electrical and Electronics Engineers Inc. (IEEE Radio Regulatory Technical Advisory group, IEEE 802.18).

In its Comments, HLAA explains how many people depend on assistive listening devices to augment their hearing aids. It further states:

> These devices work well in quiet situations but quickly reach the limits of their capabilities in noisy situations. We support development of any new technology that promises to produce assistive listening devices and systems that will help people with hearing loss function in more settings. Assistive listening devices help people with hearing loss gain and hold onto their jobs, maintain connections to their family members, and involvement with their communities.

HLLA Letter. HLLA supports Starkey's petition because it would enable "other companies" to develop the needed ALDs and would help people with hearing loss to have access to better communications equipment. *Id.*

Williams and Zarlink also support the Petition in part because of the public interest benefits of "implementing digital ALD transmissions" and to "better support the use of low power transmitters for hearing aids and other applications," which are "valuable improvements for the end-user…" Williams Letter at 2; Zarlink Letter. ON supports the Petition because it "is an appropriate option for bringing the benefits of wireless hearing aids to the hearing aid users in the US." ON Letter at 2. IEEE supports the rule change because, among other things, sensor networks could operate more efficiently in terms of reduced battery drain and reduced spectrum occupancy. IEEE Comments at 2.

Progeny LMS, LLC ("Progeny"), a holder of spectrum in the M-LMS band, filed comments stating it did not oppose the minimum bandwidth reduction as long as certain restructive conditions were imposed. Itron, Inc. ("Itron"),[3] a manufacturer of meter readers, the Medical Device Manufacturing Association ("MDMA") and USA Mobility Inc. ("USA Mobility"), a provider of paging services, are opposed to Starkey's Petition for Rulemaking.

[3] Itron also filed comments opposing Starkey's Waiver Request. Itron's claims opposing Starkey's Request for Rulemaking are almost identical to its claims opposing Starkey's Waiver Request. Itron Comments; *see* Itron Comments and Starkey Reply Comments in ET Docket No. 09-38.

At the outset, Starkey notes that USA Mobility filed comments opposing Starkey's Waiver Request and its Petition for Rulemaking on May 11, 2009. USA Mobility's comments, while styled "Reply Comments," appear to be initial comments in both the Waiver Request and the Petition for Rulemaking dockets. Because USA Mobility filed the comments on May 11, the same day reply comments were due in the waiver docket, ET Docket No. 09-38, Starkey did not have an opportunity to read, let alone to rebut, USA Mobility's comments.

Starkey asks for leave to respond to USA's Mobility's comments opposing Starkey's Waiver Request here; and asks that Starkey's instant comments be incorporated in and made part of the waiver docket, ET Docket No. 09-38. In the alternative, Starkey requests that USA Mobility's "Reply Comments" be stricken from the record in ET Docket No. 09-38 as untimely filed.

II. USA MOBILITY'S AND OTHER PARTIES' CLAIMS OPPOSING STARKEY'S WAIVER REQUEST AND ITS PETITION FOR RULEMAKING ARE UNSUPPORTED

A. Starkey's Filing of a Request for a Waiver and a Petition For Rulemaking is Appropriate

As an initial matter, Starkey would refute USA Mobility's claims that "Starkey cannot have it both ways" in requesting a waiver and in petitioning for a rule change *See* USA Mobility's Comments at 4-5. Starkey requested a waiver of the Section 15.247(a)(2) minimum bandwidth requirements in order to more expeditiously operate lower power devices that would greatly enhance hearing-impaired Americans' overall quality of life. Starkey has invested in said low power devices and is ready to roll them out. Starkey also demonstrated that operating said low power devices with a narrower 6dB minimum bandwidth of 100 kHz would not cause harmful interference and would instead encourage the use of less bandwidth. Thus, granting the

waiver would permit Starkey to more immediately better the quality of life of hearing-disabled Americans and would make for the better and more efficient use of spectrum.

Starkey believes it has a worthy waiver request. It did not have to file a Petition for Rulemaking to amend the Section 15.247(a)(2) bandwidth requirements. Starkey, however, believes that the millions of Americans that are hearing impaired would benefit if other hearing aid industry manufacturers were to develop low power devices to those that Starkey has already developed to better and more seamlessly connect the hearing impaired. Starkey also believes that lowering the minimum bandwidth requirement from 500 kHz to 100 kHz would negate the current rule's effect of encouraging users to increase their accepted bandwidth and thus potentially increase interference. The rule change would make for better and more efficient use of bandwidth.

Thus, while related, Starkey's Waiver Request and its Petition for Rulemaking would have differing public interest results. The waiver, if granted, is particular to Starkey and would enable Starkey to expeditiously roll out devices that would enhance the quality of life of the hearing impaired and enable Starkey devices to more efficiently use the spectrum. The rule change, if granted, would enable other hearing aid industry manufacturers to develop other such devices for the hearing impaired, and permit other users to use the spectrum more efficiently. Starkey's filing for both a waiver and a rule change is entirely appropriate.

B. USA Mobility's Opposition to Starkey's Waiver Request are Unfounded

USA Mobility bluntly asserts that neither Starkey nor any other commenters have established "special circumstances" justifying granting the waiver. *Id.* at 2-3. The fact that Starkey is seeking the waiver in order to better the lives of millions of Americans with hearing disabilities is lost on USA Mobility. Starkey has requested the waiver, first and foremost, in order to roll out low power devices that could greatly enhance the overall quality of life of the

hearing disabled; and because waiving the Section 15.247(a)(2) minimum bandwidth requirements would do this expeditiously and would not cause harmful interference. As stated *supra* at 2, Starkey is contemplating operating devices such as assistive listening devices ("ALDs"), wireless devices for transmitting public service announcements; and programming devices for the configuration of hearing instruments.

USA Mobility further states that Starkey's claim that the waiver would lead to more efficient spectrum usage is unfounded. *Id.* at 3. Starkey asserts, however, that the waiver would make for better use of spectrum as to Starkey. Contrary to USA Mobility's assertions, there is good cause to grant Starkey's Waiver Request. A waiver may be granted if a grant would serve the public interest without undermining the policy of the rule.[4] Starkey has demonstrated that the waiver is in the public interest, as it would enhance the overall quality of life for the hearing disabled and make for better and more efficient use of bandwidth.

Moreover, the waiver would not undermine the purposes of the rule. USA Mobility claims that Section 15.247(a)(2) was adopted principally to mitigate interference and that grant of the waiver "would create an unacceptable risk of harmful interference into both licensed and unlicensed operations in the 902-928 MHz band and adjacent bands." *Id.* at 4. However, by specifying a minimum bandwidth of 500 kHz over which to spread RF energy, the current rule has the effect of encouraging users who want to use this power spectral density requirement to increase their occupied bandwidth, thus increasing potential interference. Reducing this minimum bandwidth requirement while maintaining the power spectral density requirement would instead encourage the use of less bandwidth and thus lower the total transmitted power when less bandwidth is required.

[4] *See WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969), *aff'd*, 459 F.2d 1203 (D.C. Cir.), *cert. denied*, 409 U.S. 1027 (1972).

Starkey further addresses USA Mobility's and others' claims that Starkey's proposals would result in unacceptable threats of interference below.

C. Granting the Waiver or Amending the Rule Would not Produce Harmful Interference

USA Mobility brashly asserts that granting either Starkey's Waiver Request for its Petition for Rulemaking "would create an unacceptable risk of harmful interference into licensed operations, as well as other unlicensed operations, in the 902-928 MHz and adjacent bands." USA Mobility Comments at 5. It also 1) disparages Starkey's experimental testing and technical arguments; 2) reasserts MDMA's claim that amending the bandwidth requirements would threaten medical low power devices; 3) reasserts Itron's claims that waiving the bandwidth requirements would exacerbate the problems caused by the 100 percent duty cycle of many digitally modulated devices; and 4) asserts that waiving or amending the bandwidth requirements would create an unacceptable risk of harmful interference into out-of-band operations. *Id.* at 5-7. USA Mobility's claims of harmful interference are bloated and without merit.

Starkey has demonstrated that granting the waiver and/or rule change will not produce harmful interference but instead – and in particular as to the rule change – would make for better and more efficient use of the bandwidth. First, Starkey has conducted tests with various 900 MHz hand sets and head sets and has not experienced any problems with interference either with the systems it tested or with the Starkey system. Specifically, Starkey has conducted extensive testing of its system with Plantronics handsfree head sets, FCC id AL8CS50XXX devices, and has found no adverse effects either to the Plantronics devices or to the Starkey system. The Starkey system uses adaptive frequency selection to move away from the interference, as does

the Plantronics system. The Starkey system will not interfere with the licensed systems in this band because it employs spectrum etiquette techniques such as listen before talk ("LBT").

With its Waiver Request and the Petition for Rulemaking Starkey is merely asking for the minimum bandwidth requirement to be reduced from 500 to 100 KHz. Starkey does not seek to change the power spectral density requirements of 8 dBm/3 KHz and thus is not asking to increase the overall output power specification. The change that Starkey requests will prevent the inefficient use of the 902 to 928 MHz band by reducing the total power and the total occupied bandwidth for those applications that do not require 500 KHz of bandwidth.

Thus, contrary to MDMA's and USA Mobility's assertions, the rule change would not "threaten to overpower many low power devices." USA Mobility Comments at 6 n.19 (citing MDMA Comments at 2). In addition, spreading RF energy over a wider bandwidth does not in itself produce less interference. As stated *supra* at 7, by specifying a minimum bandwidth of 500 KHz over which to spread RF energy, the current rule encourages users, who want to use this power spectral density requirement, to increase their occupied bandwidth, thus increasing potential interference. Reducing this minimum bandwidth requirement will encourage the use of less bandwidth and thus lower the total transmitted power when less bandwidth is required.

Even if Starkey were granted a waiver, Starkey would still continue to recommend the rule change in order to improve the efficiency of the band for future use. Starkey believes that there are systems deployed now and that will be deployed in the future that are using and will use more bandwidth than is currently necessary for the sole purpose of meeting Section 15.247(a)(2)'s current minimum bandwidth specification in order to transmit a higher power.

Itron's claims, reasserted by USA Mobility, that granting the waiver or rule change would exacerbate the problems caused by the 100 percent duty cycle of many digitally-

modulated devices, also fail. Itron Comments at 5-6. Itron's depictions of Starkey's intended low power devices are wildly exaggerated and off the mark. While Starkey is planning a variety of ALDs and other devices, *supra* at page 2, the devices would be used in particular settings and venues and certainly not 24/7, and will not be operated non-stop as Itron claims. For example, devices to be used in classrooms or theater settings would be used during class times and or performances, and configuration devices would be limited to doctor or health provider/technical patient visits.

Also, while Starkey supports the Commission's examination of whether it should adopt "rules of etiquette" to be used in the ISM bands, Starkey reiterates that it is already using one such technique – LBT prior to transmitting.

LBT limits the harmful interference in this band from relatively high power transmitters. In addition, Starkey has implemented adaptive frequency selection techniques to limit susceptibility to interference. It should be noted that very low power devices such as hearing aids would not necessarily use LBT since their output power is limited to -25 dBm ERP due to the size constraints of the antennas and the power capacity of the batteries used in hearing devices. The assistive listening devices and configuration devices contemplated by Starkey will employ such LBT and adaptive frequency selection techniques.

While Starkey can vouch for the etiquette techniques it uses, it cannot vouch for those used by others. If the Commission looks favorably on the Petition for Rulemaking, Starkey would support the Commission also adopting appropriate spectrum etiquette techniques including LBT or duty cycle limitations.

USA Mobility's claims that the waiver or rule change would threaten the out-of-band operations, including USA Mobility's own operations, are also unfounded. First, the grant of the

waiver or the rule change would not result in the ubiquitous deployment claimed by USA Mobility and Itron. As stated above, while Starkey is planning a variety of ALDs and other devices, *supra* at page 2, the devices will not be operated non-stop as Itron claims. In addition, Starkey will not operate said devices with no constraints on their duty cycle; and Starkey would recommend the adoption of spectrum etiquette techniques if the Commission looks favorably on amending the rule.

More importantly, there are already rules in place that protect out-of-band operations. Whether Starkey's Waiver Request and/or its Petition for Rulemaking is granted, all parties will have to continue to operate pursuant to all the provisions contained in Section 15.247, including Section 15.247(d), which states:

> In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Further, Starkey and others would also have to comply with the general limits for out-of-band interference specified under Sections 15.205 and 15.209 of the Commission's rules. Thus, USA Mobility's claims that the grant of the waiver or the rule change would result in threats of harmful interference to its operations should be disregarded.

For the same reasons, USA Mobility's request that, if a waiver or rule change is granted, the Commission effectively create a "guard band" to shield users in adjacent licensed bands, is

without merit.[5] USA Mobility Comments at 9. The rules referred to above obviate the need for such a guard band.

D. Amending the Rule Is Consistent With the Purposes of the Rule and in the Spirit of the Part 15 Rules

Itron claims, as it did as to Starkey's Waiver Request, that amending the rule "would undercut the very spectrum efficiencies the Commission had in mind when it adopted the rule." Itron Comments at 4. As Starkey has asserted repeatedly and *supra* at 9, spreading RF energy over a wider bandwidth does not in itself produce less interference, and the rule's current minimum bandwidth requirement has the effect of encouraging users to increase their occupied bandwidth, thus increasing potential interference. Reducing the minimum bandwidth would instead encourage more efficient spectrum usage.

Moreover, spreading techniques, such as direct sequence spread spectrum and frequency hopping, are but two approaches to reducing susceptibility to interference. These are brute force approaches to the problem of susceptibility. There are other modern techniques available, such as adaptive frequency hopping and adaptive frequency selection, that are better approaches to not only limiting susceptibility, but also to reducing unwanted interference.

Itron further claims that amending the rule would interfere with the Commission's efforts to rationalize coexistence in the 902-928 MHz band. Itron Comments at 5. To the contrary, Starkey believes that the rule change is in the spirit of the Commission's efforts to rationalize the use and encourage the commercial use of the 902 to 928 MHz band in such a way so as to maximize usage while minimizing interference. As Itron itself posed in its comments opposing the waiver, Part 15 Rules already allow for "hundreds of millions of varied-types of unlicensed

[5] USA Mobility also requests that any waiver or rule change be conditioned on "compliance with a -20 dB emissions mask." USA Mobility Comments at 9. The information it provides regarding this "emissions mask" is insufficient for Starkey to comment on the same.

devices to coexist." Itron Comments in ET Docket No. 09-38, at 3. Moreover, as Starkey indicated, *supra*, it already uses spectrum etiquette techniques and would support the Commission adopting appropriate spectrum techniques if the Commission rules favorably on the Petition for Rulemaking.

E. Operating and/or Using Alternative Spectrum for the Assistive Listening Devices ("ALDs") is Not Viable or Practicable

USA Mobility finally asserts that the Waiver Request and the Petition for Rulemaking are untenable because there is alternative spectrum Starkey and others could use to operate ALDs. Itron makes similar assertions. USA Mobility Comments at 8-9; *see* Itron Comments at 7-8. However, none of the alternative spectrum presents viable or practicable options. As Starkey previously stated, Section 15.249 has technical limitations. Section 15.249 does not specify a transmit power level sufficient for the successful deployment of assistive listening devices. Link budget analysis shows that 15.249 would be insufficient for deployment in most public settings. The link budget for -1.5 dBm allows for <3 meter operation. Most classrooms, auditoriums, places of worship, etc. require a minimum of 20 meter operation for a commercially deployable system. Waiving or amending 15.247(a)(2) increases this range and makes ALDs possible for most venues.

Similarly, operating ALDs within the 217 MHz is impractical. The current rules have the following limitations for the assistive listening devices and configuration devices envisioned by Starkey:

1. Limit the total amount of bandwidth to 1 MHz;
2. Channel allocation for standard channels is limited to 25 kHz maximum;
3. Transmission is limited to one way; and

4. Operation within 30 Km of certain VHF TV transmitters makes reception impossible at 217 MHz, given the current power spectral mask requirements for VHF TV transmitters.

Operating the envisioned devices in this band would entail, at a minimum, the following modifications and/or rule changes: providing for 3 MHz total bandwidth; increasing the occupied bandwidth up to 300 kHz; allowing two-way voice and data communication; and permitting maximum power spectral density of = 6 dBM/10 kHz.

Finally, other spectrum options are also impractical or limiting. Using the frequencies of 72-73 MHz, 74.6-74.8 MHz and 75.2-76 MHz under Section 15.237 would limit the output power to 80 mV/m at 3 meters. This is also insufficient for the typical range of ALD operations. Further, this frequency band is shared with channels 4 and 5, VHF TV which would limit its use in areas where these TV channels are operating. In sum, there is presently no viable or practicable alternative spectrum for Starkey to operate the contemplated ALDs.

III. PROGENY'S CLAIMS AS TO THE PETITION FOR RULEMAKING ARE ALSO UNSUPPORTED

Progeny states that it would not oppose the Petition for Rulemaking as long as there is no reduction in the power spectral density ("PSD") and as long as the Commission restricts Starkey's "safety services" to the non-M-LMS portion of the band. Progeny Comments at 5-6. As Progeny itself notes, Starkey has not sought a reduction of the PSD. *Id*. at 5. Progeny adds that Starkey should not be allowed to operate any safety-related ALDS in *any* portion of the band that is shared with primary M-LMS services because the devices would be required to accept interference from M-LMS transmission. *Id.* at 3. Progeny's safety concerns, however, are unwarranted and could be counterproductive. Starkey believes that its adaptive frequency algorithm works best when given a larger bandwidth for potential interference-free areas of spectrum. Limiting the bandwidth would reduce the reliability of the system which, could alert

those with hearing impairments by transmitting alarms. Further, Starkey makes no guarantee of the delivery of alarm indications, but instead offers a best effort quality of service delivery. Progeny's attempts to restrict Starkey or other users to the non-M-LMS portion of the band should be disregarded.

IV. THE COMMISSION SHOULD GRANT STARKEY'S PETITION FOR RULEMAKING

There are sufficient reasons to support Starkey's Petition for Rulemaking and to amend the minimum 6dB requirements in Section 15.247(a)(2). As Starkey, the Hearing Loss Association of America ("HLLA"), and other commenters have shown, amending the rule would, among other things, greatly enhance the production of ALDs and would help people with hearing loss be better connected. As the HLLA also noted: "[a]ssistive listening devices help people with hearing loss gain and hold onto their jobs, maintain connections to their family members, and involvement with their communities." HLLA Letter.

Amending the rule would also result in the better and more efficient use of the bandwidth. Section 15.247(a)(2)'s present minimum bandwidth requirement encourages users who want to use the power density requirement to *increase* their occupied bandwidth, thus increasing potential interference. Reducing the bandwidth requirement would improve the efficiency of the band while reducing interference.

Moreover, and notwithstanding USA Mobility's, Itron's and others' claims, the rule change would not result in harmful interference. Further, if the Commission looks favorably on the rule change, it can also adopt spectrum etiquette techniques such as LBT or duty cycle limitations. Finally, the alternative spectrum options for operating ALDs are not viable or practicable.

For these reasons, and because, pursuant to Section 1.407, there are sufficient reasons to support the rule change, the Commission should grant Starkey's Petition for Rulemaking.

Respectfully submitted,

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CERTIFICATE OF SERVICE

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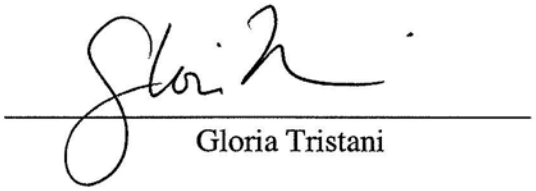

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